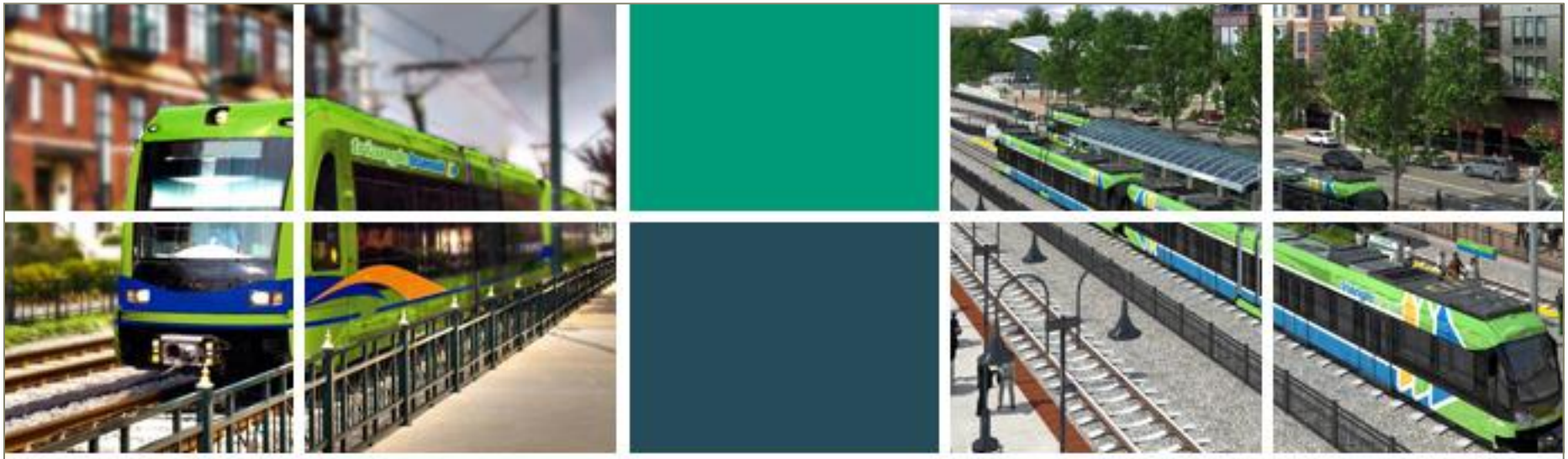


Durham City Council
March 5, 2015

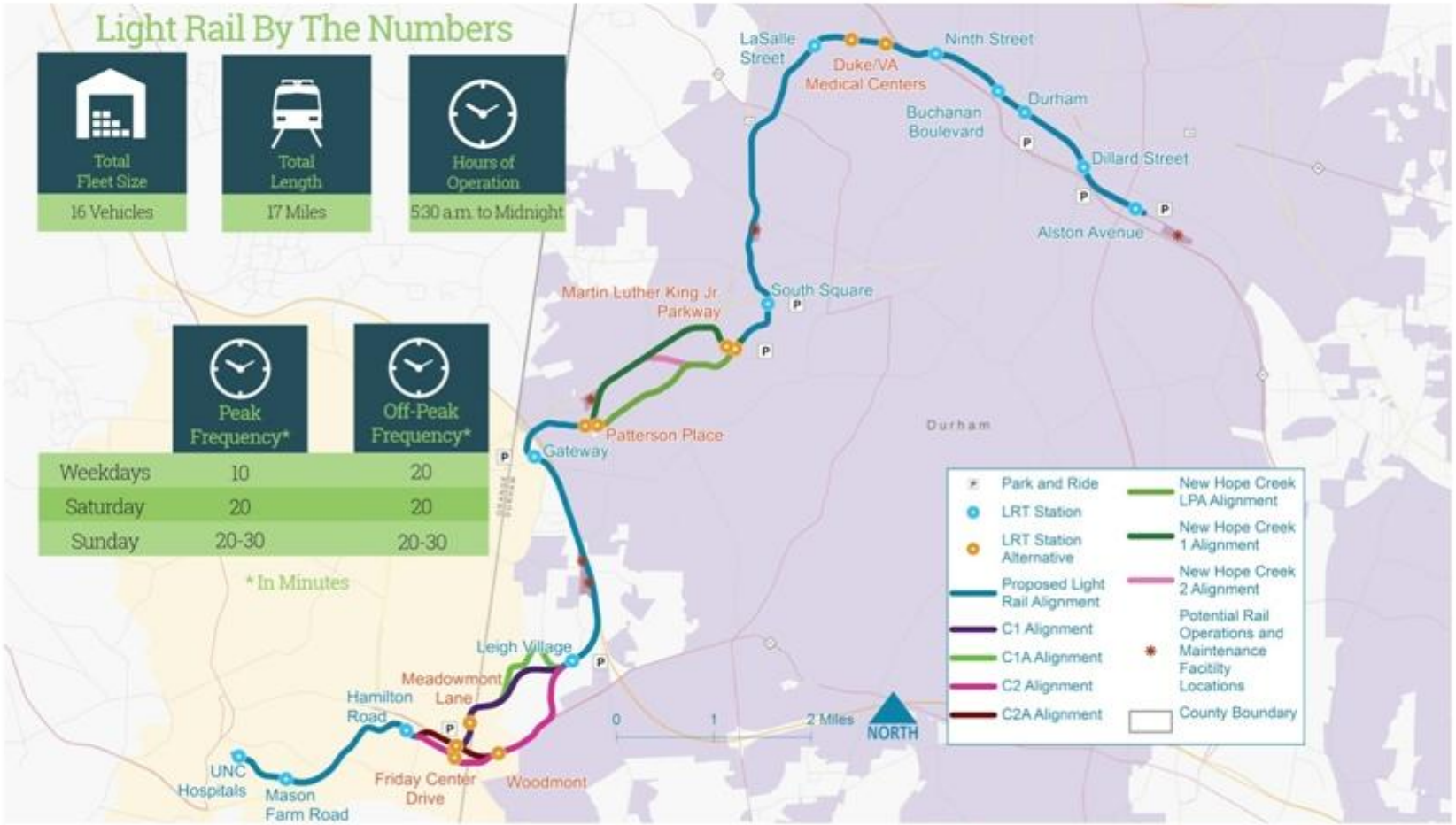
Durham-Orange Light Rail Transit Project

OurTransit FUTURE

Presentation Agenda

- Downtown Durham: Data Coming Later This Spring; Not Covered Today
- What We Study for the EIS
- Five Key Decisions in EIS: Reviewing the Data
  - Build or No Build
  - Duke/VA Station Location Choice
  - Rail Operations and Maintenance Facility (ROMF) Site
  - New Hope Creek Crossing
  - Little Creek Crossing
- Ask Questions Along the Way
- No Action Required At This Meeting

Durham-Orange Light Rail Transit Project



Impacts: What We Study

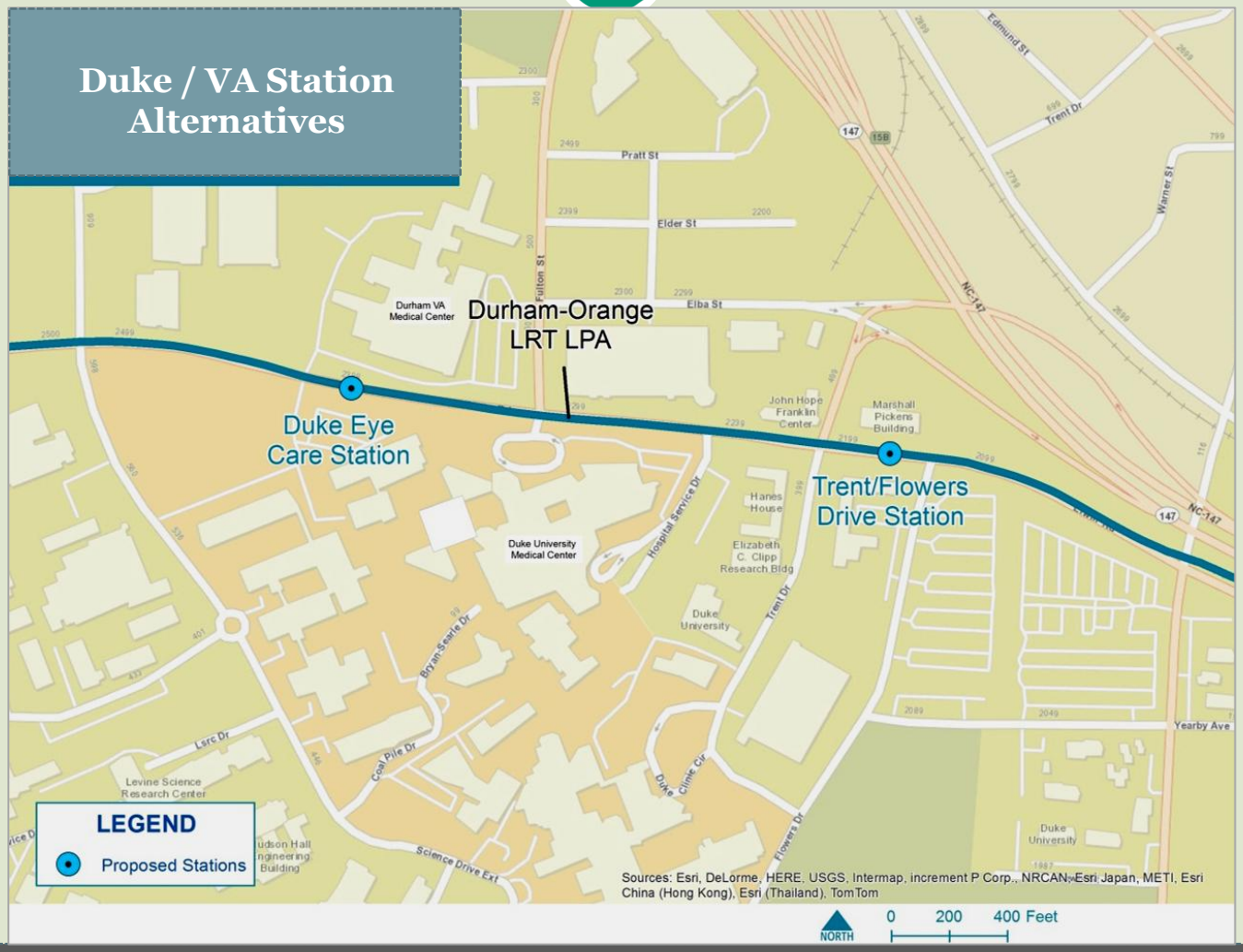
- Transit Ridership
- Regional Travel Patterns
- Capital & Operating Costs
- Noise / Vibration
- Cultural & Historic Resources
- Public Parklands
- Natural Resources
- Energy Use
- Traffic
- Utilities
- Air Quality
- Water Quality
- Land Use
- Bicycle & Pedestrian Facilities
- Visual & Aesthetic
- Minority & Low-Income Population Impacts
- Neighborhoods
- Business & Residential Impacts
- Population Served
- Employment Served
- Construction Impacts

Five Key Decisions

Build or No-Build

Duke/VA Medical Centers

Two alternative station sites



Duke/VA Stations: Similar Impacts

- The following impacts were identical or extremely similar across both alternatives:
  - Employment served
  - Travel time
  - Energy Use
  - Parklands
  - Visual & Aesthetic
  - Capital Cost
  - Operating Cost
  - Acquisitions & Displacements
  - Noise
  - Vibration
  - Water Resources
  - Natural Resources

Duke/VA Stations: Population Served

Alternative	Eye Care Center	Trent/Flowers
Population Served in 2040	10,800	10,500

- Minor difference in population does not translate into increase in ridership at Eye Care Center (see next slide)

Duke/VA Stations: Ridership

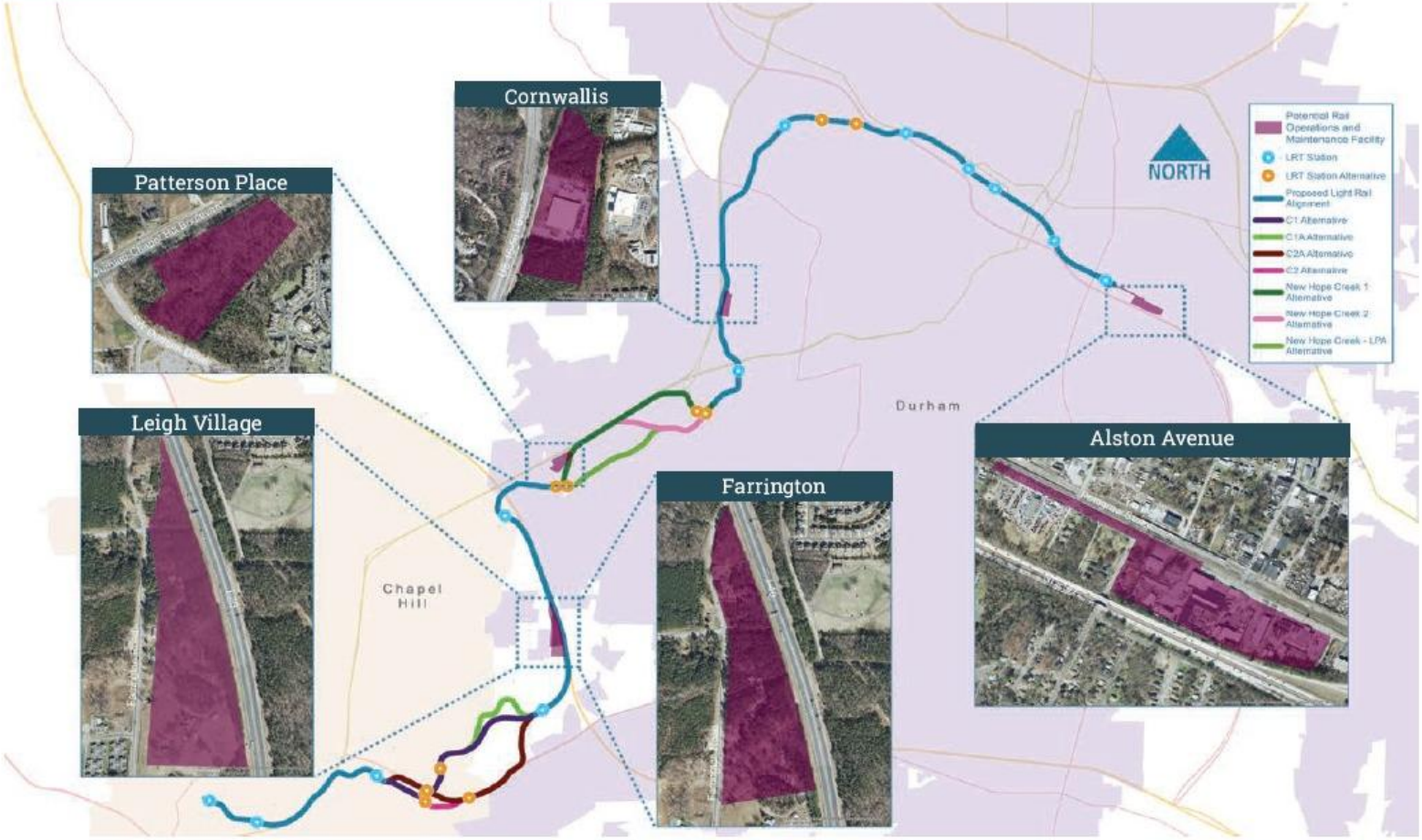
Alternative	Eye Care Center	Trent/Flowers
Additional Daily Boardings Compared to Low Ridership Alternative	--	+280

- Lowest ridership alternative: C1A, NHC2, Duke Eye Care Center Station with 23,560 daily riders
- Trent/Flowers station location adds 280 daily riders over Eye Care Center station location

Duke/VA Stations: Summary

- Eye Care Center Drive and Trent/Flowers station locations largely perform exactly the same across virtually all metrics
- Differences on ridership and population served in 2040 are very minor
- Duke and VA have expressed preference for Trent/Flowers station location due to:
  - Less traffic and pedestrian congestion compared to Eye Care Center Drive area
  - Future Duke University plans for West Campus

Select the Rail Operations & Maintenance Facility Location



The five Rail Operations & Maintenance Facility (ROMF) alternatives under consideration in this area will be evaluated based on the assessment criteria. In certain instances, criteria are uniform across the alternatives while other criteria will help to inform the study and to distinguish and select an alternative.

ROMF: Similar Impacts

- The following impacts were identical or extremely similar across all alternatives:
  - Vibration
  - Noise
  - Public Parklands

ROMF: Size & Function

Alternative	Leigh Village	Farrington Rd	Patterson Place	Cornwallis Rd	Alston Ave
Total Acres	21	25	16	20	19
Functionality with Alignment Alternatives	ALL	ALL	Only NHC-LPA	ALL	ALL

- NHC1 and NHC2 alignment paths would pass through Patterson Place ROMF location; therefore Patterson Place ROMF only works with NHC-LPA alignment

ROMF: Capital Cost

Alternative	Leigh Village	Farrington Rd	Patterson Place	Cornwallis Rd	Alston Ave
Capital Cost (millions of $2015)	$50-$65	$50-$65	$70-85	$65-$80	$55-$70*

*Additional costs to be determined pending completion of downtown Durham alignment analysis

ROMF: Acquisitions & Displacements

Alternative	Leigh Village	Farrington Rd	Patterson Place	Cornwallis Rd	Alston Ave
Residential Acquisitions	1	6	0	0	2
Commercial Acquisitions	2	0	0	1	6
Vacant Land Acquisitions	2	5	2	0	11
Full Acquisitions	5	11	2	1	19*
Residential (land only)	2	0	0	0	0
Agriculture	0	0	1	0	0
Partial Acquisitions	2	0	1	0	0*

*Additional impact estimating to be done pending completion of downtown Durham alignment analysis

ROMF: Hazardous, Contaminated & Regulated Materials

Alternative	Leigh Village	Farrington Rd	Patterson Place	Cornwallis Rd	Alston Ave
High Risk Sites	0	0	0	0	2
Medium Risk Sites	0	0	0	1	8

ROMF: Socioeconomic & Demographic Conditions

Alternative	Leigh Village	Farrington Rd	Patterson Place	Cornwallis Rd	Alston Ave
Minority Population (%)	29%	29%	55%	55%	94%
Below Poverty (%)	15%	15%	24%	24%	48%
Zero Car Households (o%)	5%	5%	12%	12%	50%
Limited English Proficiency (%)	5%	5%	16%	16%	5%

ROMF: Natural Resources

Alternative	Leigh Village	Farrington Rd	Patterson Place	Cornwallis Rd	Alston Ave
Bottomland (Acres)	0	0	0	0	0
Alluvial (Acres)	0	0	0	1	0
Mesic Mixed (Acres)	17	9	16	12	0
Maintained/ Disturbed (Acres)	4	16	0	7	19
Total Biotic Resources Impacted (Acres)	21	25	16	20	19

ROMF: Water Resources

Alternative	Leigh Village	Farrington Rd	Patterson Place	Cornwallis Rd	Alston Ave
Stream Impacts (Linear Feet)	587	638	0	154	0
Riparian Zone 1 Impacts (Acres)	0.6	1.0	0	0	0
Riparian Zone 2 Impacts (Acres)	0.5	0.9	0	0.03	0
Wetland Impact (Acres)	0.2	0.3	0	0.1	0
Pond Impacts (Acres)	0.2	0	0	0	0
100-Year Floodplain Impacts (Acres)	0	0	0	0.2	0

ROMF: Historic Property

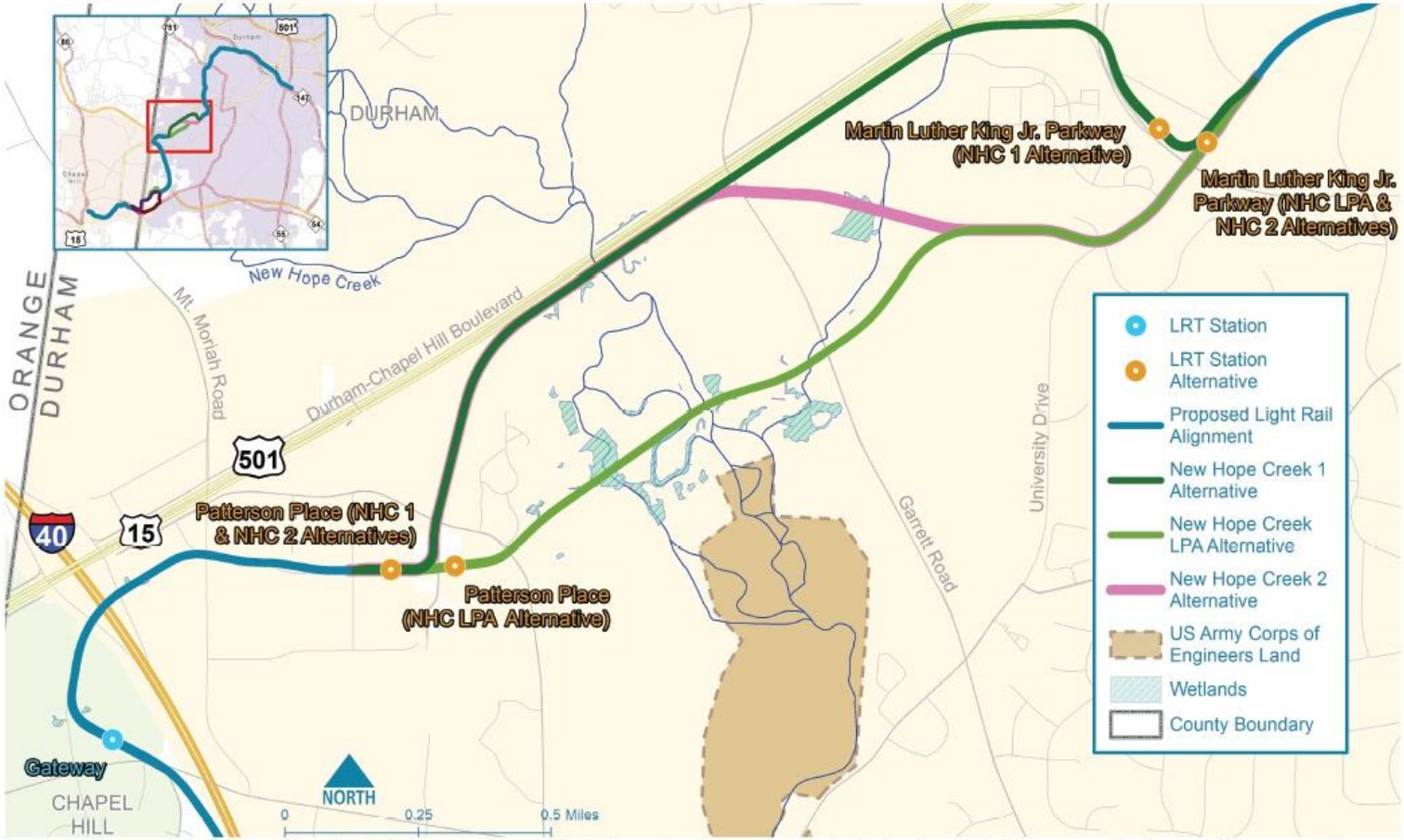
Alternative	Leigh Village	Farrington Rd	Patterson Place	Cornwallis Rd	Alston Ave
Historic Site Impacts	TBD (1)	TBD	TBD	TBD	TBD

- Leigh Village site likely to have one property designated historic during EIS process
- Work is ongoing with FTA and the State Historic Preservation Office to confirm the potentially eligible historic properties

ROMF Sites: Summary

- Patterson Place ROMF most expensive, only works with NHC-LPA. Choosing NHC1 or NHC2 alignment eliminates Patterson Place ROMF
- Leigh Village and Farrington sites overlap, but if Leigh Village has historic designated property, FTA will likely recommend Farrington Rd over Leigh Village
- Cornwallis Rd site may have implementation challenges including topography, access and connection to major roads
- Alston Ave site cost may rise and also result in schedule impacts due to cleanup, and the requirements of business relocations (including one business with a freight rail spur)

Select the New Hope Creek Alignment



The three alignments under consideration in this area will be evaluated based on the assessment criteria. In certain instances, criteria are uniform across the alternatives while other criteria will help to inform the study and to distinguish and select an alternative.

New Hope Creek: Similar Impacts

- The following impacts were identical or extremely similar across all alternatives:
  - Noise
  - Public Parklands
  - Population Served
  - Employment Served
  - Protected Species
  - Energy Use

New Hope Creek: Travel Time

Alternative	NHC-LPA	NHC1	NHC2
Minutes: Seconds	8:44	8:47	9:15

- NHC1 is 3 seconds slower than NHC-LPA
- NHC2 is 28 seconds slower than NHC1

New Hope Creek: Ridership

Alternative	NHC-LPA	NHC1	NHC2
Additional Daily Boardings Compared to Low Ridership Alternative	+220	+390	--

- Lowest ridership alternative: C1A, NHC2, Duke Eye Care Center Station with 23,560 daily boardings
- NHC-LPA adds 220 daily boardings compared to NHC2
- NHC1 adds 390 daily boardings compared to NHC2

New Hope Creek: Capital Cost

Alternative	NHC-LPA	NHC1	NHC2
Additional Cost ($ millions) above Lowest Capital Cost Alternative	--	+$16.3 m	+$3.4 m

- Lowest capital cost alternative: C2, NHC-LPA, either Duke/VA station at $1.522 billion
- NHC1 adds $16.3m in capital cost
- NHC2 adds $3.4m in capital cost

New Hope Creek: Operating Cost

Alternative	NHC-LPA	NHC1	NHC2
Additional Cost ($) above Lowest Operating Cost Alternative	--	+ $180,100/year	+ $75,600/year

- Lowest operating cost alternative: C1, NHC-LPA, either Duke/VA station at $16,846,000/year
- NHC1 adds $180,100/year in operating/maintenance cost
- NHC2 adds $75,600/year in operating/maintenance cost

New Hope Creek: Vibration

Alternative	NHC-LPA	NHC1	NHC2
Sites With Vibration Impacts	2	2	4

- Alignments were screened for vibration impact sites within:
  - 150 feet of Residential uses
  - 100 feet of Institutional uses
  - 450 feet of Special Receptors (concert halls, recording studios)

New Hope Creek: Acquisitions/Displacements

Alternative	NHC-LPA	NHC1	NHC2
Full Acquisitions and Displacements	7	7	7
Partial Acquisitions	8	12	10

- Low Impact Design techniques and corridor preservation by Durham and Chapel Hill have kept total number of acquisitions low for project of this size

New Hope Creek: Natural Resources

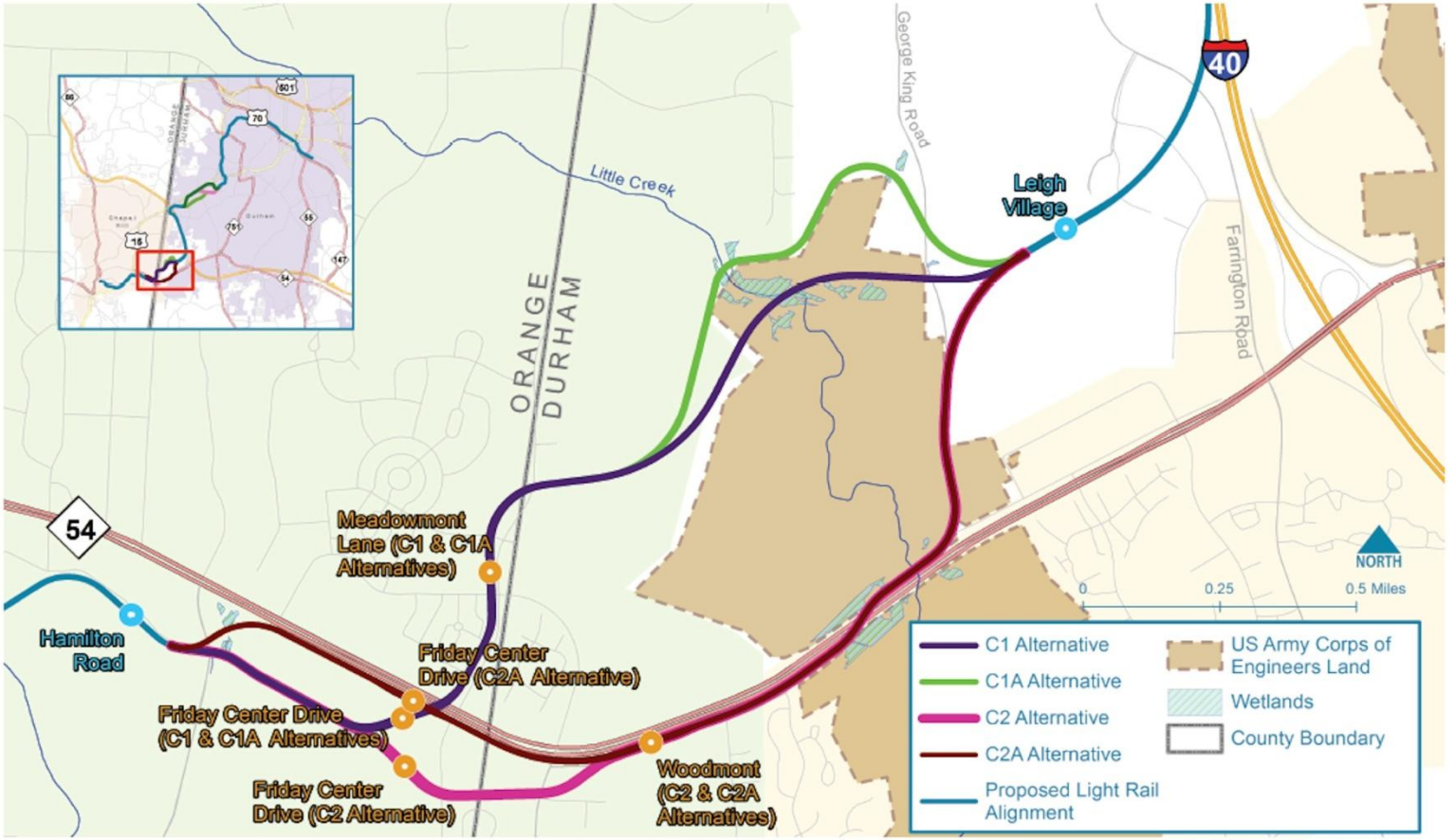
Alternative	NHC-LPA	NHC1	NHC2
Bottomland (Acres)	4	2	3
Alluvial (Acres)	-	-	-
Mesic Mixed (Acres)	5	5	8
Maintained/Disturbed (Acres)	19	22	17
Total Biotic Resources Impacted (Acres)	28	29	28

New Hope Creek: Water Resources

Alternative	NHC-LPA	NHC1	NHC2
Stream Impacts (Linear Feet)	221	--	210
Riparian Zone 1 Impacts (Acres)	0.5	0.1	0.4
Riparian Zone 2 Impacts (Acres)	0.6	0.1	0.4
Wetland Impact (Acres)	0.01	0.01	0.01
Pond Impacts (Acres)	--	--	--
100-Year Floodplain Impacts (Acres)	0.2	0.6	0.1

- Low Impact Design techniques have kept total acreage and linear feet impacts low for project of this size

Select the Little Creek Alignment



The four alignments under consideration in this area will be evaluated based on the assessment criteria. In certain instances, criteria are uniform across the alternatives while other criteria will help to inform the study and to distinguish and select an alternative.

Little Creek: Similar Impacts

- The following impacts were identical or extremely similar across all alternatives:
  - Employment Served
  - Noise Impacts
  - Energy Use
  - Protected Species

Little Creek: C1 Eliminated

- US Army Corps of Engineers provided a letter stating that C1A, C2, and C2A were viable alternatives but that C1 was not.
- USACOE would not authorize use of federal government property (game lands and a waterfowl impoundment) for C1 “given the availability of less damaging alternatives.”

Little Creek: Travel Time

Alternative	C1A	C2	C2A
Minutes: Seconds	6:59	6:03	5:53

- C2 time 56 seconds shorter than C1A
- C2A time 10 seconds shorter than C2

Little Creek: Ridership

Alternative	C1A	C2	C2A
Additional Daily Boardings Compared to Low Ridership Alternative	--	+720	+730

- Lowest ridership alternative: C1A, NHC2, Duke Eye Care Center Station with 23,560 daily riders
- C2 and C2A both add over 700 daily riders compared to C1A

Little Creek: Capital Cost

Alternative	C1A	C2	C2A
Additional Cost ($2015 millions) above Lowest Capital Cost Alternative	+ $36.0 m	--	+$7.6 m

- Lowest capital cost alternative: C2, NHC-LPA, either Duke/VA station at $1.522 billion
- C2A adds $7.6m in capital cost
- C1A adds $36.0m in capital cost

Little Creek: Operating Cost

Alternative	C1A	C2	C2A
Additional Cost ($) above Lowest Operating Cost Alternative	+ $82,100/year	+ $56,900/year	+ $56,900/year

- Lowest operating cost alternative: C1 (eliminated), NHC-LPA, either Duke/VA station at $16,846,000/year
- C2 and C2A add $56,900/year in operating/maintenance cost
- C1A adds $82,100/year in operating/maintenance cost

Little Creek: Public Parklands-4(f)

Alternative	C1A	C2	C2A
Acres Impacted	1.6	2.1	1.0

- **Section 4(f) requires consideration of park and recreational lands, wildlife and waterfowl refuges, and historic sites in transportation project development.**
- **Before approving a project that uses Section 4(f) property, FTA must either:**

  (1) determine that the impacts to the property are *de minimis* (will not adversely affect the activities, features, or attributes of the property), or

  (2) undertake a Section 4(f) Evaluation.
- **C2A has least impact to Section 4(f) properties**

Little Creek: Natural Resources

Alternative	C1A	C2	C2A
Bottomland (Acres)	1	1	1
Alluvial (Acres)	1	1	--
Mesic Mixed (Acres)	9	8	5
Maintained/Disturbed (Acres)	12	15	19
Total Biotic Resources Impacted (Acres)	23	25	25

Little Creek: Water Resources

Alternative	C1A	C2	C2A
Stream Impacts (Linear Feet)	434	587	519
Riparian Zone 1 Impacts (Acres)	0.3	0.4	0.3
Riparian Zone 2 Impacts (Acres)	0.2	0.2	0.3
Wetland Impact (Acres)	0.07	0.07	0.12
Pond Impacts (Acres)	0.02	0.07	0.01
100-Year Floodplain Impacts (Acres)	0.3	0.6	0.6

- Low Impact Design techniques have kept total acreage and linear feet impacts low for project of this size

Little Creek: Vibration

Alternative	C1A	C2	C2A
Sites With Vibration Impacts	4	4	2

- C2A has fewest Vibration impact sites

Little Creek: Visual & Aesthetic

Alternative	C1A	C2	C2A
Visual and Aesthetic Impacts	Moderate to High	Moderate	Moderate

- Assessment method assigns different users different sensitivity to visual effects

Little Creek: Acquisitions/Displacements

Alternative	C1A	C2	C2A
Full Acquisitions and Displacements	5	3	2
Partial Acquisitions	10	18	14

- Low Impact Design techniques and corridor preservation by Durham and Chapel Hill have kept total number of acquisitions low for project of this size

Timeline for Local Gov't Participation

- **Jan 2015** – **Review** Five Key Decisions
- **March-June 2015** – **Local Governments & Public Review Data** on Benefits / Impacts of Alternatives
- **September/October 2015** – Official 45-day comment period: **Local Governments and Citizens** provide comments on Key Decisions and any other items related to the D-O LRT Project

- **Fall/Winter 2015** – Triangle Transit Develops Final EIS
- **February 2016** – **Record of Decision** issued by FTA

Discussion